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CHEMICAL & ENGINEERING

NEWS

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YELLOW RAIN

The strange case of the Hmong

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CHEMICAL & ENGINEERING NEWS

JANUARY 9, 1984

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■ **Allied simplifies processes to manufacture silicon tetrafluoride and silane.** **Page 5**

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Government

Department of Energy completes its plan for radioactive waste management mandated by Congress in 1982 act. **Page 39**

Science

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Books

"The Scientist and Engineer in Court" views the expert witness's role as advocative rather than scientifically objective. **Page 45**

News Focus

Scientific support for the charge that the Soviet Union is involved in the use of "yellow rain" toxin weapons is weak. **Page 8**

- The government claims it has eyewitness reports and extensive intelligence data to substantiate its case
- But the difficulty of obtaining samples has limited the scientific evidence, leaving many issues unresolved
- Eyewitness accounts are extensive and indicate possibility of some form of chemical warfare, but show methodological problems
- Medical evidence is hard to analyze because of serious health problems in the affected areas, some possibly due to toxin-infested food

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Liquidity Proves Tough For Chemical Firms To Rebuild

Companies show some of usual progress in rebuilding cash assets after recession, but short-term debt has grown considerably at same time

William J. Storck, C&EN New York

Last year, the first after a rough recession, typically would have been a time for U.S. chemical companies to rebuild their liquidity (cash and relative cash coverage of liabilities). At least that was the hope of many chemical company executives and chemical industry analysts as the year began. However, through the third quarter, a C&EN survey shows that in many cases that hope was only part way to reality.

The standard dogma is that companies should build liquidity during and immediately following a recession by tightening their inventories and accounts receivable. If that can be done, drains on corporate cash should abate, and cash and marketable securities should increase. This comes about through a reduction in financing requirements and a fresh earnings gain in the initial recovery stage.

At the beginning of 1983, it seemed that chemical management had inventories under control, and that if chemical demand and earnings improved throughout the year, corporate balance sheets would come out looking much better. However, a recent survey by C&EN of chemical companies' third-quarter stockholders reports shows that there were some flies in the ointment during the first nine months of the year and that, whereas inventories did not build, other parts of the balance sheets did, much to the detriment of liquidity.

Chemical corporations indeed raised their cash and marketable securities through the third quarter. Of the 16 major chemical companies surveyed by C&EN, 13 gave comparable data on cash and marketables. These 13 had a total of cash and marketable securities of $2.12 billion, a nearly 25% increase over the same companies' total at the end of 1982. Fourth-quarter 1982 figures were used for comparison because the data were more consistent and because it was the low point of the chemical recession.

By contrast, a small group of seven randomly selected diversified companies with substantial chemical interests had an average increase in cash and marketables of a little more than 47% to a total of $2.34 billion, mainly on large increases of 63% for Eli Lilly and 131% for Uniroyal.

A few of the chemical companies surveyed also had healthy increases. The outstanding one was a 497% jump for Pennwalt. Other increases included 61% for Olin, 42% for Williams Cos., and 37% for Monsanto. However, cash and marketables fell for some companies, including 63% for Reichhold Chemicals, 62% for Freeport McMoRan, 30% for Essex Chemical, and 13% for First Mississippi.

Third-quarter cash was up 25% for chemical companies

$ Millions	Cash plus marketable securities	% change from 1982[a]	Current ratio 1983	Current ratio 1982[a]	Cash ratio 1983	Cash ratio 1982[a]
CHEMICAL FIRMS	**$2332.1**	**24.8%**	**1.8**	**1.9**	**0.23**	**0.18**
American Cyanamid	347.8	8.8	2.0	2.0	0.46	0.42
Celanese	na	na	1.7	1.9	na	na
Dow Chemical	195.0	6.6	1.4	1.8	0.07	0.08
Essex Chemical	4.9	−30.0	2.3	3.1	0.16	0.32
First Mississippi	2.0	−13.0	1.5	0.7	0.04	0.02
Freeport McMoRan	0.8	−61.9	1.6	1.4	0.00	0.01
W. R. Grace	206.7	25.7	1.9	1.7	0.22	0.16
Monsanto	566.0	36.7	2.3	2.6	0.50	0.44
Morton Thiokol	210.7	b	1.4	1.1	0.59	b
Olin	124.0	60.8	2.2	1.8	0.35	0.20
Pennwalt	87.8	497.3	2.8	1.9	0.57	0.08
Petrolite	na	na	3.3	2.9	na	na
Reichhold Chemicals	5.7	−62.5	2.2	2.7	0.07	0.21
Stauffer Chemical	143.6	−3.4	2.3	2.5	0.42	0.45
Union Carbide	158.0	2.6	1.8	2.0	0.08	0.09
Williams Cos.	279.1	41.5	1.7	1.7	0.80	0.57
DIVERSIFIED FIRMS	**$2341.1**	**47.2%**	**1.7**	**1.9**	**0.25**	**0.19**
Borg-Warner	106.2	22.6	1.7	1.6	0.20	0.16
Du Pont	1495.0	49.6	1.7	1.9	0.27	0.21
Eli Lilly	495.8	63.2	1.9	1.9	0.52	0.35
Georgia-Pacific	37.0	2.8	1.5	1.7	0.04	0.05
B. F. Goodrich	19.6	−56.3	1.8	1.6	0.04	0.08
NL Industries	30.3	−42.0	2.1	2.2	0.09	0.14
Uniroyal	157.2	131.2	2.4	2.5	0.42	0.22

a 1982 figures are for fourth quarter. b 1982 figures are not available. na = not available.

In spite of the increase in combined cash and marketables among the chemical companies, the broadest measure of corporate liquidity—the current ratio—actually decreased during the first three quarters. This ratio of current assets divided by current liabilities fell slightly in the third quarter to 1.8 for the group of 16 chemical firms from 1.9 in the fourth quarter last year.

The reason for the slight decline is that although current assets for the group increased 5.1% to $18.7 billion, current liabilities rose more than twice as much. Combined current liabilities at the 16 companies rose an average of 11% from fourth-quarter 1982 to $10.3 billion in third-quarter 1983.

The current ratio fell even more for the diversified companies. Their current assets rose 3.8% in the period to $16.2 billion, but current liabilities jumped almost 14% to $9.3 billion. That sent the current ratio down to 1.7 at the end of last year's third quarter from 1.9 at the end of fourth-quarter 1982.

Because the cash and marketable securities portion of the current assets was increasing faster than current liabilities, however, the cash ratio (cash and marketables divided by current liabilities) increased moderately by the end of the third quarter for the chemical firms and the diversifieds alike. The average cash ratio for the chemical companies increased to 0.23 at the end of the third quarter from 0.18 in fourth-quarter 1982, and the ratio for the diversifieds rose to an average of 0.25 from 0.19.

The cash ratio increase for chemical companies was helped greatly by increases for Williams Cos. to 0.80 from 0.57 and for Monsanto to 0.50, the best among the biggest companies, from 0.44.

One of the reasons that current assets did not increase very fast is that inventories seemed to go nowhere in the nine months. However, this may be good since inventories are, at best, a dubious asset, requiring cash in one form or another to finance them. Inventories for the chemical companies at the end of the third quarter of last year amounted to a total of $6.63 billion, up an average of just 0.7% from fourth-quarter 1982. For the diversified companies, inventories actually declined a slight 0.5% to a total of $6.42 billion.

The other factor in current assets, accounts receivable, reached a total of $7.69 billion for the chemical companies by the end of last year's third quarter, a 7% increase from fourth-quarter 1982. For the diversified companies, accounts receivable increased an average of 5.9% to a total of $6.67 billion.

On the liabilities side, short-term debt increased substantially in the nine months, indicating that some companies, at least, may not have their financing under control yet. These companies still had to borrow a lot of money in the first recovery year.

Short-term debt for the 16 chemical companies climbed about 37% during the nine-month period to a total of $2.17 billion. Freeport McMoRan's debt increased the most, 1693%. But the chemical group's average increase was affected significantly by Dow Chemical, whose short-term debt rose 170% to $746 million. □

Inventories were flat, but receivables, payables, and short-term debt rose in third quarter

$ Millions	Inventories		%	Receivables		%	Accounts payable		%	Short-term debt		%
	1983	1982[a]	change	1983	1982[a]	change	1983	1982[a]	change	1983	1982[a]	change
CHEMICAL FIRMS	**$6633.3**	**$6584.8**	**0.7%**	**$7692.9**	**$7190.3**	**7.0%**	**$3836.6**	**$3583.2**	**7.1%**	**$2172.7**	**$1591.2**	**36.5%**
American Cyanamid	489.1	513.5	−4.8	669.8	681.4	−1.7	559.3	572.9	−2.4	144.2	138.2	4.3
Dow Chemical	1853.0	1746.0	6.1	2356.0	2034.0	15.8	1189.0	1055.0	12.7	746.0	276.0	170.3
Essex Chemical	20.6	22.2	−7.2	43.7	30.4	43.8	11.5	9.7	18.6	12.1	5.3	128.3
First Mississippi	23.2	23.6	−1.7	38.2	29.4	29.9	24.1	7.0	244.3	7.8	53.9	−85.5
Freeport-McMoRan	77.6	90.6	−14.3	107.1	124.2	−13.8	112.0	149.7	−25.2	52.0	2.9	1693.1
W. R. Grace	931.7	878.0	6.1	635.7	621.4	2.3	471.3	473.3	−0.4	167.9	177.9	−5.6
Monsanto	819.0	824.0	−0.6	1242.0	1216.0	2.1	523.0	379.0	38.0	193.0	131.0	47.3
Olin	254.4	265.3	−4.1	346.6	274.8	26.1	99.1	136.2	−27.2	52.5	87.5	−40.0
Pennwalt	137.6	141.0	−2.4	177.5	147.4	20.4	50.5	49.9	1.2	14.2	60.2	−76.4
Reichhold Chemicals	51.5	61.5	−16.3	124.8	101.5	23.0	67.9	59.8	13.5	13.6	9.9	37.4
Stauffer Chemical	316.6	279.1	13.4	269.1	364.2	−26.1	115.4	99.4	16.1	114.5	113.6	0.8
Union Carbide	1659.0	1740.0	−4.7	1558.0	1420.0	9.7	440.0	415.0	6.0	601.0	487.0	23.4
Williams Cos.	184.8	246.8	−25.1	124.4	145.6	−14.6	173.5	176.3	−1.6	53.9	47.8	12.8
DIVERSIFIED FIRMS	**$6424.7**	**$6454.0**	**−0.5%**	**$6668.3**	**$6298.7**	**5.9%**	**$4186.9**	**$4579.3**	**−8.6%**	**$1526.6**	**$ 864.2**	**76.6%**
Borg-Warner	290.8	300.9	−3.4	426.1	429.6	−0.8	244.0	259.9	−6.1	42.2	62.1	−32.0
Du Pont	3725.0	3690.0	0.9	3787.0	3659.0	3.5	2175.0	2636.0	−17.5	912.0	319.0	−185.9
Eli Lilly	650.3	658.3	−1.2	511.5	555.7	−8.0	638.4	628.0	1.7	315.8	245.6	28.6
Georgia-Pacific	719.0	699.0	2.9	695.0	572.0	21.5	403.0	340.0	18.5	216.0	195.0	10.8
B. F. Goodrich	413.1	400.1	3.2	549.0	371.1	48.1	500.5	444.8	12.5	11.6	17.1	−32.2
NL Industries	293.9	359.6	−18.3	336.4	391.4	−14.1	226.0	270.6	−16.5	29.0	25.4	14.2
Uniroyal	332.6	346.1	−3.9	362.6	319.9	13.3	na	na	na	na	na	na

a 1982 figures are for fourth quarter. na = not available.